

**Appendix B. Kings Beach Watershed  
Improvement Project Final  
Watershed Improvement Plan  
Memorandum**

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# **Kings Beach Watershed Improvement Project**

## **Final Watershed Improvement Plan Memorandum**



***Prepared for:***

**Placer County**

**10825 Pioneer Trail, Suite 105**

**Pioneer Commerce Center**

**Truckee, CA 96161**

***Prepared by:***

**ENTRIX, Inc.**

**1048 Ski Run Boulevard**

**South Lake Tahoe, CA 96150**

**November, 2006**



**Final**  
**Watershed Improvement Plan Memorandum**  
**for**  
**Kings Beach Watershed Improvement Project**

*Prepared for:*

Placer County  
Public Works Department  
10825 Pioneer Trail, Suite 105  
Pioneer Commerce Center  
Truckee, CA 96161

*Prepared by:*

ENTRIX, Inc.  
1048 Ski Run Boulevard  
South Lake Tahoe, CA 96150

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## TABLE OF CONTENTS

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	Page
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 SUMMARY OF PROJECT PLANNING PROCESS .....</b>	<b>1</b>
<b>2.1 KINGS BEACH WIP SEZ EXISTING CONDITIONS AND ALTERNATIVES         REPORT .....</b>	<b>1</b>
2.1.1 Reports Developed:.....	1
<b>2.2 HYDROLOGIC CONDITIONS REPORT .....</b>	<b>2</b>
2.2.1 Reports Developed:.....	2
<b>2.3 GRIFF CREEK SEZ IMPROVEMENT PLAN .....</b>	<b>2</b>
2.3.1 Reports:.....	2
<b>2.4 REVIEW ALTERNATIVES MEMORANDUM.....</b>	<b>2</b>
2.4.1 Reports:.....	3
<b>2.5 EVALUATING ALTERNATIVES TECHNICAL MEMORANDUM .....</b>	<b>3</b>
2.5.1 Reports:.....	4
<b>3.0 SUMMARY OF THE PREFERRED ALTERNATIVE .....</b>	<b>4</b>

### List of Figures

**Figure 1. Kings Beach Watershed Preferred Alternative ..... Following page 5**

## **1.0 INTRODUCTION**

This memorandum summarizes the results of the planning process for the Kings Beach Watershed Improvement Project (WIP) completed under the direction of the Technical Advisory Committee (TAC). The memorandum also presents the Preferred Alternative identified by the TAC to address water quality issues in the Kings Beach watershed.

The WIP goals are to improve the quality of runoff that is generated in the Kings Beach watershed. Part of the WIP process has been an evaluation of the Griff Creek SEZ. Although this evaluation proceeded along with the evaluation of water quality improvements in the urban area, it has been presented in an independent set of reports.

## **2.0 SUMMARY OF PROJECT PLANNING PROCESS**

The planning process for this project involved detailed analyses that were then summarized in a series of memorandums and reports. The process began with defining the existing conditions in the project area and proceeding through developing and approving alternatives. The planning process is described below under each of the reports that were prepared. Copies of the reports and memorandums are available from Placer County.

### **2.1 KINGS BEACH WIP SEZ EXISTING CONDITIONS AND ALTERNATIVES REPORT**

The Kings Beach SEZ Existing Conditions and Alternatives Report was prepared in summer 2005 following extensive field work to assess the creek geomorphic function and topography. The report focused on Griff Creek and addressed the Project purpose and objectives, and historical and current information describing existing conditions within the area. The existing conditions analysis consisted of a geomorphic, riparian, and fish habitat assessments of Griff Creek, and an assessment of the Coon Street SEZ. The report identified 20 locations in Griff Creek where improvements were needed to restore the geomorphic function of the creek. Up to three alternatives were presented at each location. A technical memorandum describing fish passage conditions at the State Route 28 crossing of Griff Creek was also included in the report.

A TAC meeting was held on October 18, 2005 to discuss this report and provide input to Placer County. The SEZ Existing Conditions and Alternatives Report was reviewed by TAC members and comments/suggestions were provided. Minutes of the meeting were prepared and distributed to the TAC.

In addition to a TAC meeting, a Public Meeting was held on December 1, 2005. The meeting was advertised in the Sierra Sun and Tahoe World, and flyers were handed out door to door to residents along Griff Creek. The purpose of the meeting was to present the alternatives and solicit input from the community prior to selecting the preferred alternative and initiating the design process.

#### **2.1.1 Reports Developed:**

- Administrative Draft SEZ Existing Conditions and Alternatives Report, September 2005
- Final SEZ Existing Conditions and Alternatives Report, February 2006.



## **2.2 HYDROLOGIC CONDITIONS REPORT**

The Hydrologic Conditions Report described the hydrologic conditions in the Kings Beach area and served as background information to support development, review, and evaluation of proposed water quality improvements in the Kings Beach urban and residential areas. The report included a HEC-HMS model to estimate the flow volume and peak for 1-hour and 72-hour storms with return periods of 2-years and 25-years. Runoff was estimated from the sub-basins within the Kings Beach watershed and also Griff Creek. In addition, the report identified the major water quality problems in the project area. Maps were provided showing subbasin boundaries, flow patterns, and locations of water quality problems. Several comments were received from the TAC that were addressed in a comment/response table that was included in the Final Hydrologic Conditions Report.

### **2.2.1 Reports Developed:**

- TAC Draft Hydrologic Conditions Report, August 2005.
- Final Hydrologic Conditions Report, February 2006.

## **2.3 GRIFF CREEK SEZ IMPROVEMENT PLAN**

The Griff Creek SEZ Improvement Plan provided additional detail on the alternatives presented in the SEZ existing conditions report. The plan also included recommendations for the five road crossings of Griff Creek. Concept sketches were presented to describe the alternatives along with preliminary cost estimates. Each of the alternatives was evaluated based on a ranking of Good/Better/Best.

The TAC was asked to review and comment on the report and provide comments at a TAC meeting held on February 23, 2006. Minutes of the meeting were subsequently developed and provided to the TAC. A Public meeting was advertised in the Sierra Sun and Tahoe World, and held on March 21, 2006 to present community members with alternatives for improvement of the Griff Creek SEZ, and to solicit input from the community. The process of selecting a preferred alternative was also discussed at the Public meeting. Comments from the TAC and the public were submitted and folded into the final report.

### **2.3.1 Reports:**

- TAC Draft Report SEZ Improvement Plan, February 2006
- Final Report SEZ Improvement Plan, June 2006

## **2.4 REVIEW ALTERNATIVES MEMORANDUM**

The Kings Beach Review Alternatives Memorandum was prepared to identify the range of alternatives that could address the identified water quality problems in the project area. The report was distributed to the TAC and a TAC meeting was held on March 16, 2006 to discuss the memorandum. The Review Alternatives Memorandum presented three alternatives to address the identified water quality problems in the Kings Beach Area (not including Griff Creek). The three alternatives are as follows.

**Alternative A** is the localized approach to runoff treatment, primarily using settling basins and sediment traps to treat runoff. Alternative A includes features such as basins and culverts that are relatively inexpensive and easy to implement. The objective of this alternative is to reduce the runoff volume and peak flow by storing runoff throughout the watershed.

**Alternative B** utilizes a basin-wide approach, with additional settling basins and sediment traps to slow and treat runoff. In addition, selected areas will have storm drain pipes, rolled curb and gutter, and infiltration beds to slow, treat, and redirect forest and surface runoff and reduce pollutant loads to the lake. This alternative will further reduce the volume of runoff and peak flow at State Route 28.

**Alternative C** utilizes a regional approach, and is the most comprehensive at collecting and treating runoff. Rolled curb and gutter and storm drains will collect and direct all runoff to several treatment facilities located at the bottom of the Project area where it is treated with media filters before discharging to the lake.

Full-size concept drawings were presented for each of the alternatives to identify the types of facilities and locations. The TAC provided comments on the alternatives at the meeting and in writing that were incorporated into the Final Review Alternatives Memorandum.

#### **2.4.1 Reports:**

- TAC Draft Review Alternatives Memorandum, February 2006
- Final Review Alternatives Memorandum, June 2006

### **2.5 EVALUATING ALTERNATIVES TECHNICAL MEMORANDUM**

A technical memorandum was prepared and distributed by e-mail to the TAC that described the methodology that Placer County would use to evaluate the three alternatives. The memorandum presented the ranking criteria and matrices that comprised the evaluation methodology. There were five ranking criteria: Water Quality; Capital Cost; Feasibility; Operation and Maintenance; and Acquisition. Each ranking criterion had several factors that defined how the criterion would be evaluated.

The TAC was asked to provide comments on the methodology by June 5, 2006 and the final memorandum was sent by e-mail to the TAC on June 13, 2006. On June 23, 2006, Placer County held a site walk with the TAC to view the project area and discuss elements of the project alternatives. Input provided at the site walk was used in evaluating the alternatives.

The alternatives were analyzed and ranked in the Evaluating Alternatives Technical Memorandum. The technical memorandum applied the ranking criteria that were defined in the June evaluation memorandum and approved by the TAC. The TAC was given two weeks to review and submit comments before or at the TAC meeting held on October 2, 2006. During the TAC meeting, discussion of the memorandum led to verbal comments and suggestions. Also, a written comment was submitted that was added to the verbal comments and folded into the Kings Beach WIP Final Evaluating Alternatives Memorandum. Minutes of the TAC meeting were subsequently provided.

The final evaluation indicated that Alternative B has the highest ranking, although all three alternatives rank similar in several criteria. Because Alternative B did not resolve the water quality issues at State Route 28 (the commercial core), it was combined with the treatment

features of Alternative C. Alternative B provides treatment and runoff control in the residential area and Alternative C provides treatment of the commercial core. The memorandum concluded that this combination of Alternatives B and C would provide the highest level of treatment.

Overall, the TAC agreed with the evaluation. However, the TAC identified several issues for the project team to keep in mind when moving forward into the design phase. The TAC agreed that by-passing the forest runoff around the urban area was a reasonable means of controlling some of the runoff volume. However, the low-flows through the Coon Street SEZ should remain in the channel and only high flows are bypassed. Costs could increase with implementation of higher-end treatments, operations and maintenance, and land acquisition. The group suggested phasing this Project with other projects in the area, and working with Caltrans, NTPUD, and Southwest Gas to alleviate treatment and maintenance costs. Finally, the TAC requested they be apprised of the Project's progress for the remainder of the conceptual phase through the 50 percent design phase.

#### **2.5.1 Reports:**

- Draft Evaluating Alternatives Memorandum, May 2006
- Final Evaluating Alternatives Memorandum, June 2006
- TAC Draft Evaluating Alternatives Technical Memorandum, September 2006
- Final Evaluating Alternatives Technical Memorandum, November 2006

### **3.0 SUMMARY OF THE PREFERRED ALTERNATIVE**

The Preferred Alternative is Alternative B, the basin wide approach, with additional media filters for treatment of commercial core runoff (Figure 1). Alternative B was estimated to reduce fine sediment loads by 51 percent, and the addition of media filters at the bottom of the watershed would further reduce fine sediment loads to the lake. The estimate of the fine sediment reduction for the Preferred Alternative is similar to the reduction for Alternative B, within the accuracy of the analysis. Because of the similarity of Alternative B and the Preferred Alternative, no further analysis of the water quality benefits will be made at this time.

The strategy of the Preferred Alternative would be to remove the forest runoff from the residential and commercial treatment train, treat the residential area with Alternative B, and treat the commercial core with a combination of vaults to settle particulates and media filters to treat the runoff. The media filter capacity may be configured as a single unit in each sub-basin or as parallel units. The separation of runoff between the residential area and the commercial core reduces the volume of runoff treated by the media filters. The Preferred Alternative also includes improvements at Griff Lane, north of the Project Area.

Elements of the Preferred Alternative would include:

- Encouraging homeowner's to install BMPs;
- Separating forest runoff with conveyance to Griff Creek or Lake Tahoe;
- Constructing grass-lined swales where they can be supported to convey runoff along the right-of-way and promote infiltration;



- Constructing rock-lined channels to convey water along the right-of-way and promote infiltration;
- Installing basins to collect and retain runoff;
- Constructing infiltration galleries to retain runoff; and
- Installing media filters, or advanced treatment technologies, to treat runoff from the commercial core and Brockway Vista Avenue.

This Preferred Alternative will be carried forward into a 50 percent design, where specific concepts and features will be defined and sized. The TAC will meet during the 50 percent design phase to provide input on the preferred alternative development.

